

WE CLAIM:

1. A method of testing a sensor array incorporated into a vehicle seat, said method including the steps of:

placing a seat pan and cushion assembly having a seat trim cover and a sensor array into a seat build fixture;

electrically connecting the sensor array to an electrical testing device capable of determining the actuation of the sensors in the sensor array;

determining if the sensors are at a predetermined unloaded output value;

activating the seat build fixture to apply compression force to the seat pan and cushion assembly;

determining if the sensors have changed output values where the change corresponds to a predetermined amount;

mounting the seat trim cover to the bottom of the seat pan in a predetermined manner to form a completed lower seat assembly; and

de-activating the seat build fixture to release compression force from the completed lower seat assembly.

2. A method as set forth in claim 1 wherein the step of determining if the sensors are at a predetermined unloaded output value further includes the step of rejecting the uncompleted lower seat assembly if any sensor is not at the predetermined unloaded value.

3. A method as set forth in claim 2 wherein the step of rejecting the uncompleted lower seat

assembly if any sensor is not at the predetermined unloaded value further includes the steps of:

- removing the uncompleted lower seat assembly from the fixture;
- removing the seat cushion from the seat pan;
- replacing the sensor array;
- reassembling the seat cushion to the seat pan; and
- returning the uncompleted lower seat assembly to the seat fixture to be retested.

4. A method as set forth in claim 1 wherein the step of determining if the sensors have changed output values where the change corresponds to a predetermined amount when the seat build fixture is activated further includes the step of rejecting the uncompleted lower seat assembly if any sensor did not change its output value to the predetermined amount.

5. A method as set forth in claim 4 wherein the step of rejecting the uncompleted lower seat assembly if any sensor did not change its output value to the predetermined amount further includes the steps of:

- de-activating the seat build fixture to release the compression force from the uncompleted lower seat assembly;
- removing the uncompleted lower seat assembly from the fixture;
- removing the seat cushion from the seat pan;
- replacing the sensor array;
- reassembling the seat cushion to the seat pan; and
- returning the uncompleted lower seat assembly to the seat fixture to be retested.

6. A method as set forth in claim 1 wherein the step of de-activating the seat build fixture to release compression force from completed lower seat assembly further includes the steps of:

determining if the sensors have changed output values where the change corresponds to a predetermined amount; and

rejecting the completed lower seat assembly if any sensor did not change its output value to the predetermined amount.

7. A method as set forth in claim 6 wherein the step of rejecting the completed lower seat assembly if any sensor did not change its output value to the predetermined amount when the seat build fixture is de-activated further includes the steps of:

re-activating the seat build fixture to apply compression force to the completed lower seat assembly;

unmounting the seat trim cover from the bottom of the seat pan;

de-activating the seat build fixture to release the compression force;

removing the lower seat assembly from the fixture;

removing the seat cushion from the seat pan;

replacing the sensor array;

reassembling the seat cushion to the seat pan; and

returning the seat pan and cushion assembly to the seat fixture to be retested.

8. A method as set forth in claim 1 wherein the step of placing a seat pan and cushion assembly having a sensor array into a seat build fixture further includes the steps of first:

mounting a sensor array to a seat pan;

inserting a foam cushion into a preformed seat trim cover; and  
placing the covered foam cushion onto the seat pan to form an uncompleted lower seat assembly.

9. A method as set forth in claim 1 wherein the step of mounting the seat trim cover to the bottom of the seat pan in a predetermined manner to complete the construction of the lower seat assembly further includes the step of first stretching the ends of the seat trim cover around the underside of the seat pan while the seat pan and cushion assembly are in compression.

10. A method as set forth in claim 9 wherein the step of mounting the seat trim cover to the bottom of the seat pan in a predetermined manner to complete the construction of the lower seat assembly further includes the step of attaching the seat trim cover to the seat pan by using a plurality of mechanical connectors.

11. A method of testing a sensor array incorporated into a vehicle seat, said method including the steps of:

mounting a sensor array to a seat pan;  
inserting a foam cushion into a preformed seat trim cover;  
placing the covered foam cushion onto the seat pan to form an uncompleted lower seat assembly;  
placing the uncompleted lower seat assembly into a seat build fixture;  
electrically connecting the sensor array to an electrical testing device capable of determining the actuation of the sensors in the sensor array;

determining if the sensors are at a predetermined unloaded output value;

activating the seat build fixture to apply compression force to the uncompleted lower seat assembly;

determining if the sensors have changed output values where the change corresponds to a predetermined amount;

stretching the ends of the seat trim cover around the underside of the seat pan while the seat pan and cushion assembly are in compression;

mounting the ends of the seat trim cover to the bottom of the seat pan in a predetermined manner to form a completed lower seat assembly; and

de-activating the seat build fixture to release compression force from completed lower seat assembly.

12. A method as set forth in claim 11 wherein the step of determining if the sensors are at a predetermined unloaded output value further includes the step of rejecting the uncompleted lower seat assembly if any sensor is not at the predetermined unloaded value.

13. A method as set forth in claim 12 wherein the step of rejecting the uncompleted lower seat assembly if any sensor is not at the predetermined unloaded value further includes the steps of:

removing the uncompleted lower seat assembly from the fixture;

removing the seat cushion from the seat pan;

replacing the sensor array;

reassembling the seat cushion to the seat pan; and

returning the uncompleted lower seat assembly to the seat fixture to be retested.

14. A method as set forth in claim 11 wherein the step of determining if the sensors have changed output values where the change corresponds to a predetermined amount when the seat build fixture is activated further includes the step of rejecting the uncompleted lower seat assembly if any sensor did not change its output value to the predetermined amount.

15. A method as set forth in claim 14 wherein the step of rejecting the uncompleted lower seat assembly if any sensor did not change its output value to the predetermined amount further includes the steps of:

de-activating the seat build fixture to release compression force from the uncompleted lower seat assembly;

removing the uncompleted lower seat assembly from the fixture;

removing the seat cushion from the seat pan;

replacing the sensor array;

reassembling the seat cushion to the seat pan; and

returning the uncompleted lower seat assembly to the seat fixture to be retested.

16. A method as set forth in claim 11 wherein the step of de-activating the seat build fixture to release compression force from completed seat assembly further includes the steps of:

determining if the sensors have changed output values where the change corresponds to a predetermined amount; and

rejecting the completed lower seat assembly if any sensor did not change its output value to the predetermined amount.

17. A method as set forth in claim 16 wherein the step of rejecting the completed lower seat assembly if any sensor did not change its output value to the predetermined amount when the seat build fixture is de-activated further includes the steps of:

re-activating the seat build fixture to apply compression force to the completed lower seat assembly;

unmounting the seat trim cover from the bottom of the seat pan;

removing the seat assembly from the fixture;

removing the seat cushion from the seat pan;

replacing the sensor array;

reassembling the seat cushion to the seat pan; and

returning the seat pan and cushion assembly to the seat fixture to be retested.